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**Case No.:** OLE-001C2

**Date:** 07/25/97**Sent By:****Pages Including this****cover page:** 6**S.N.** 08/615,724**Message:** DRAFT CLAIMS FOR DISCUSSION AT INTERVIEW

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29. (amended) A cellular X-ray grid for use in an X-ray imaging system with a radiation point source and an X-ray film, comprising:

5 a grid, including a main part surrounded by a [monolithic solid] frame having a height corresponding to the height of the main part and a width selected to prevent bending of said grid and having at least one longitudinally-extending side, and a layer of radiation absorbent material completely covering and overlying all surfaces of said grid including said main part [of] and frame, said main part including a top face  
10 and a bottom face, and a multiplicity of throughbores formed therethrough extending from said top face to said bottom face and defining cells to pass radiation emitted by said point source through said main part to form an X-ray image on an X-ray film underlying said grid, said cells are separated by a plurality of x-ray absorbing partitions,  
15 said cells each [being a quadrilateral in cross-section and] having [a] diagonals disposed at such a predetermined [oblique] angle not parallel or perpendicular to said longitudinally-extending side of said main part so as to eliminate shadow images of the cells on an X-ray image on the film during exposure thereof [to] from the radiation point source [during] with movement of said grid in a predetermined rectilinear direction, with said longitudinally-extending side of said main part being oriented  
20 parallel to said direction of movement.

30. A cellular X-ray grid according to Claim 29, wherein said cells have longitudinal axes extending normally to said top and bottom faces of said main part.

25 31. A cellular X-ray grid according to Claim 29, wherein said cells have longitudinal axes which radially extend toward a focal point.

32. A cellular X-ray grid according to Claim 29, wherein said main part is photosensitive glass.

30 33.. (amended) A cellular X-ray grid comprising a main part and having two opposite end surfaces consisting of a top surface and a bottom surface and a peripheral surface said main part [consisting of a low x-ray absorbing material] being provided with a plurality of X-ray transmissive cells filled with gas or vacuum, said cells  
35 extending through said main part from one of said end surface to another of said end surface and separated by a plurality of x-ray absorbing partitions each having side

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surfaces facing a respective one of said cells and also each having two opposite end surfaces.

34. A cellular X-ray grid as defined in Claim 33, wherein said main part has a  
5 frame adjoining said peripheral surface.

35. (amended) A cellular X-ray grid as defined in Claim 33, wherein [said  
low x-ray absorbing material of] said main part is photosensitive glass.

10 36. A cellular X-ray grid as defined in Claim 33 wherein a X-ray absorbing  
layer completely covers all surfaces of said grid including said partitions and all  
surfaces of said frame.

37. A cellular X-ray grid as defined in Claim 33, and further comprising two  
15 plates connected to said main part at opposite end surfaces of said main part to cover  
and seal said main part, said plates being composed of a material capable of  
transmitting a long-wave component of X-ray radiation.

38. A cellular X-ray grid as defined in Claim 37, wherein said cells are  
20 vacuum sealed.

39. A cellular X-ray grid as defined in Claim 37, wherein said cells contain a  
sealed gas.

25 40. A cellular X-ray grid as defined in Claim 33, wherein said main part has  
two opposite longitudinal sides, said cells on a view from at least one of said end  
surfaces having two opposite sides each inclined relative to at least one of said  
longitudinal sides of said main part at one of the following Mattsson angles:

30  $\tan \alpha_1 = 1/31 + 3i$   
 $\tan \alpha_2 = 1/21 + 2i$ ;  
 $\tan \alpha_3 = 1/1 + i$ ;  
 $\tan \alpha_4 = 21 + i/1 + i$ ;  
 $\tan \alpha_5 = 31 + 2i/1 + i$ ;  
35  $\tan \alpha_6 = 21 + i/21 + 2i$ ;  
 $\tan \alpha_7 = 1 + i/31 + 2i$ ;  
 $\tan \alpha_8 = 1 + i/21 + i$ ;

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$$\tan \alpha_0 = 1 + i/l;$$

$$\tan \alpha_{10} = 2l + 2i/l;$$

$$\tan \alpha_{11} = 3l + 3i/l$$

$$\tan \alpha_{12} = 2l + 2i/2l + i$$

5

wherein  $l$  is a thickness of each of said partitions in a direction perpendicular to sides of said partitions of two neighboring cells, and  $i$  is a length of said side of each of said cells; and  $\alpha_1 - \alpha_{12}$  is an angle of inclination of said sides of cells to the intended direction of motion which is parallel to the longitudinal side of said grid, and means for moving said main part in a predetermined rectilinear direction, said at least one longitudinal side of said main part extending parallel to said direction so that said opposite sides of said cells are inclined to said direction of movement at one of said Mattsson angles.

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41. (amended) A cellular X-ray grid comprising a main part [consisting of a photosensitive glass material and] having two opposite end surfaces consisting of a top surface and a bottom surface and a peripheral surface and provided with a plurality of X-ray transmissive cells filled with gas or vacuum, said cells extending through said main part from one of said end surfaces to another of said end surfaces and separated by a plurality of X-ray absorbing partitions each having side surfaces facing a respective one of said cells and also each having [two opposite end surfaces], said main part having two opposite [longitudinal sides], and both opposite surfaces being covered by plates for covering and sealing said cells and being composed of a material capable of transmitting a long-wave component of x-ray radiation. [and x-ray absorbing layer completely covering all surfaces of said grid including partitions, said grid has at least one longitudinally-extended side, said cells having diagonals disposed at such a predetermined angle not parallel or perpendicular to said longitudinally-extending side of said main part so as to eliminate shadow images of the cells on an x-ray image].

30

42. (amended) A cellular grid as defined in Claim [41] 45, where said cells on a view from at least one of said end surfaces having two opposite sides each inclined relative to at least one of said longitudinal sides of said main part at one of the following Mattsson-angles:

35

$$\tan \alpha_1 = 1/3l + 3i$$

$$\tan \alpha_2 = 1/2l + 2i;$$

$$\tan \alpha_3 = 1/l + i;$$

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$$\tan \alpha_4 = 2l + i/l + i;$$

$$\tan \alpha_5 = 3l + 2i/l + i;$$

$$\tan \alpha_6 = 2l + i/2l + 2i;$$

$$\tan \alpha_7 = l + i/3l + 2i;$$

$$5 \quad \tan \alpha_8 = l + i/2l + i;$$

$$\tan \alpha_9 = l + i/l;$$

$$\tan \alpha_{10} = 2l + 2i/l;$$

$$\tan \alpha_{11} = 3l + 3i/l$$

$$10 \quad \tan \alpha_{12} = 2l + 2i/2l + i$$

wherein  $l$  is a thickness of each said partitions in a direction perpendicular to sides of said partitions of two neighboring cells, and  $i$  is a length of said side of each of said cells; and  $\alpha_1 - \alpha_{12}$  is an angle of inclination of said sides of cells to the intended direction of motion which is parallel to the longitudinal side of grid, and means for moving said main part in a predetermined rectilinear direction, said at least one longitudinal side of said main part extending parallel to said direction so that said opposite sides of said cells are inclined to said direction of movement at one of said Mattsson angles.

20 cancel 43.

44. (amended) A cellular X-ray grid comprising a main part having two opposite end surfaces consisting of a top surface and a bottom surface and a peripheral surface and provided with a plurality of X-ray transmissive cells filled with gas or vacuum, said cells extending through said main part from one of said end surface to another of said end surface and separated by a plurality of x-ray absorbing partitions each having side surfaces facing a respective one of said cells and also each having two opposite end surfaces and a X-ray absorbing layer completely covering all surfaces of said grid including said partitions.

30

45. (new) A cellular X-ray grid comprising a main part having a top surface and a bottom surface [two opposite surfaces] and a peripheral surface and provided with a plurality of X-ray transmissive cells filled with gas or vacuum, said cells extending through said main part from one of said end surfaces to another of said end surfaces and separated by a plurality of X-ray absorbing partitions each having side surfaces facing a respective one of said cells and also each having two opposite end surfaces, an x-ray absorbing layer completely covering all surfaces of said grid including partitions, said

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grid has at least one longitudinally-extended side, said cells having diagonals disposed at such a predetermined angle not parallel or perpendicular to said longitudinally-extending side of said main part so as to eliminate shadow images of the cells on an x-ray image on the x-ray film during exposure thereof from the radiation point source  
5 with movement of said grid in a predetermined rectilinear direction, with said longitudinally-extending side of said main part being oriented parallel to said direction of movement